

## ABSTRACT

A computer-assisted process for the design and placement of multi-colored patterns on absorbent substrates using a limited number of transparent process colorants is described. Through use of this system, a designer, working with a computer-aided design system, can generate and accurately represent on a computer monitor or similar display a multi-colored pattern, as that pattern would appear on a specified absorbent substrate, using coloring elements comprised of groups of multiple pixels in which process colors have been mixed in a controlled manner to expand the range of available colors, and to compensate for colorant delivery limitations that prevent the application of small, accurately metered quantities of colorant. Actuation instructions for a specific dye injection machine capable of patterning a moving textile substrate may be generated.

15